



**Fermilab**  
ES&H Section

## Instrumentation Team Instrument Maintenance, Calibration, and Accountability PROGRAM STATEMENT

The Instrumentation Team is part of the Radiation Protection Group, within the Environment Safety and Health Section. The **Radiation Protection Instrumentation Team (RPIT)** is responsible for the calibration, maintenance, accountability and repair of the laboratory's ES&H instrumentation.

Instrument calibration frequencies vary depending on their usage. Instruments that are used and handled often need more maintenance than the typical annual calibration required by ANSI323. An instrument may have the calibration frequency changed if a failure analysis warrants a change. A calibration sticker will be on each instrument indicating the last calibration date, the name or initials of the technician and the date of the instruments' next calibration. Because the potential for high voltage exists in many of the portable instruments, only RPIT or RPIT-approved personnel shall change batteries. Also, replacing of the wrong type of battery may cause an instrument to function in an inappropriate way causing a safety problem.

Instruments calibrated by RPIT are traceable to the National Institute of Standards and Technology. Calibration facilities (the radiation fields produced by the sources used in these facilities) are calibrated annually using instrumentation that is traceable to NIST. Exposures and exposure rates are determined and are corrected for scattering effects for each facility at each distance needed to complete calibrations. Measurement and Test Equipment is also calibrated annually and is tracked by used of the Instrumentation Team Database.

The RPIT database contains information for each instrument such as current location, failures, modifications and calibration dates for these devices. Each instrument is uniquely identified by use of an Instrument Serial Number (ISN). The data are stored on the RPIT database server computer located at Site 38 RPCF on the 2nd floor and is backed up by RPIT daily to ESHSERVER1. Once per year, generally the first workday of a new year, two new DVD discs are made of the previous years data. One DVD is kept locally in RPCF and one is stored in a fireproof safe on the 7<sup>th</sup> floor in Wilson Hall.

Most small replacement parts for instrumentation will be purchased by RPIT. Other replacement parts may be back-charged to the Division/Sections using the instrument. Division/Sections must purchase instruments if they are needed on a permanent basis (longer than a few days). All instrumentation will be purchased through ES&H section. RPIT will generate purchase orders as needed and the Division/Sections must supply a project and task number. Upon receipt of a project and task number, an instrument from the RPIT pool if available will be issued immediately. When received, the new instrument will become part of the RPIT pool. Any instrumentation not purchased through these channels will not be maintained by RPIT.

RPIT will inform Division/Sections when instruments are due for maintenance. RPIT will at the beginning of each month, send a list of instruments due and past due for calibration to each Division/Sections ES&H technician responsible for the equipment. Instruments that have

exceeded the due date indicated on the attached calibration label must no longer be used and must be removed from service. Instruments that have been due for calibration longer than three months and have not been returned to the RPIT will be declared lost and removed from the calibration list. A message will be sent to the last person assigned to the instrument notifying them that the instrument has been removed from the database and is considered lost. A notice will also be sent to security to report a loss of government property and if the instrument contained a radioactive source, a notice will be sent to the ES&H Section source physicist (or designee) to report a lost source. It is the responsibility of the last assigned person of the instrument to complete all documentation required by security. For accountability it is suggested that Division/Sections use a sign-out/sign-in sheet to keep track of instruments that Division/Sections ES&H technicians loan to others. If a lost instrument is found, it should be returned to RPIT for calibration and it will once again be added to the normal calibration cycle.

The users of the instrumentation including ODH and confined space monitors are responsible for their day-to-day operation. This includes checking the calibration sticker affixed to the side of the instrument, source check and for ODH monitors, adjusting the calibration pot in fresh air. Confined space entry monitor users shall perform a field calibration test. Users are also responsible for the return of the instrumentation if it is due for calibration or needs repair. Any instruments that have passed their recalibration date must be returned to RPIT as soon as possible. It is the user's responsibility to make instrument exchanges. A replacement instrument is usually available immediately. It is the responsibility of the user to keep RPIT informed of the instrument's location. If used on the MUX system, quad and address changes are to be reported to RPIT as soon as possible.

It is the responsibility of the Division/Sections to train its users on the operation and the importance of using instruments that are in calibration. Division/Sections shall also inform users that instruments are due for maintenance from the information supplied to them monthly from RPIT.

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